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FACT SHEET, April 2005

DTSC Recommends Resurfacing of Serpentine Gravel Roads based on Garden Valley Study

The Department of Toxic Substances Control (DTSC), with funding from the United States Environmental Protection Agency and the assistance of the U.S. Department of Transportation, John Volpe National Transportation Systems Center (Volpe Center) as well as the California Office of Environmental Health Hazard Assessment (OEHHA) has examined airborne asbestos generated from a serpentine gravel surfaced road in Garden Valley, California. The first objective of the study was to determine the asbestos emissions from a typical serpentine gravel road. The second objective was to find out how effective resurfacing the road is in reducing airborne asbestos and the potential health risk. The concentration of asbestos in the gravel road surface was approximately 2 percent. The study concludes that airborne asbestos generated from vehicle traffic may pose a significant health risk and that resurfacing the roadway substantially reduced the amount of asbestos in the air**. Based on this and other studies, DTSC recommends that similar roads and driveways covered with serpentine aggregate be resurfaced.**

Details of the study are presented in the DTSC report entitled *Study of Airborne Asbestos from a Serpentine Roadway in Garden Valley, California* available at the locations listed on the last page of this fact sheet and **on the DTSC website at www.dtsc.ca.gov/SiteCleanup/Garden_Valley/index.html**

Why is DTSC concerned with naturally occurring asbestos?

Asbestos is a naturally occurring mineral commonly found in California within serpentine rocks and soils of the Coastal Ranges, Sierra Nevada Foothills, and the Sierra Nevada Mountains. People have historically used processed asbestos for insulation, ceiling tiles, floor tiles, and automobile brake pads. Asbestos fibers pose a health risk when released to the air and inhaled. State, federal, and international health

View of a serpentine covered road in Garden Valley

agencies have classsified asbestos as a known cancer causing substance. Asbestos is known to cause lung cancer, mesothelioma (a rare cancer of the lung linings), and asbestosis (a non-cancer respiratory disease). Persons may not develop any of these conditions until over 20 years have elapsed after exposure.

In 1998 and 1999, the California Air Resources Board did air monitoring in the Garden Valley area and found airborne asbestos fibers. From August 2000 to November 2002, DTSC sought to identify the sources of airborne fibers in Garden Valley. As part of the effort, we collected soil and air samples from locations throughout Garden Valley. We collected soil samples from numerous unpaved roads, school bus stops, the Masrshall Grade road-cut, and two serpentine rock quarries. We also set up four air monitoring stations to collect air samples from Garden Valley in October 2000, and March and May 2001. Based on ambient air sampling conducted from 1998 through 2001, DTSC concluded that the primary source of airborne asbestos heaDTSC concluded that the is the unpaved roads surfaced with serpentine gravel. We also concluded that further study of airborne asbestos being released by traffic on the Garden Valley serpentine surfaced roads should be conducted.

Description of the DTSC study

DTSC and the Volpe Center designed and conducted a study to measure the level of airborne asbestos fibers released under two simulated traffic patterns along a portion of Slodusty Road, a serpentine gravel covered road known to contain asbestos.

In the summer of 2002, DTSC sampled air near the road for asbestos while simulating "typical"and "maximum" traffic conditions on the studied road. Also, DTSC sampled the air without any traffic. Ten vehicles per hour running at 10 miles per hour was selected as the typical traffic condition and 30 vehicles per hour running at 25 miles per hour was selected to represent the maximum traffic condition on the road that was studied. Air sampling equipment was placed at selected intervals on both sides of the road to measure the effect actual distance from the road may have on the amount of asbestos measured in the air.

The air sampling results showed both traffic conditions yielded significant concentrations of asbestos in the air, even at the furthest sampling point 190 feet from the roadway. Asbestos was detected at greater distances than visible dust was observed, and decreased with distance from the roadway.

In the summer of 2003, DTSC resurfaced Slodusty Road with a four inch limestone aggregate base, chip seal and limestone aggregate cover. The same air sampling study and traffic simulation was then conducted on the roadway to determine the effect that sealing the roadway had in reducing airborne asbestos. **The results show that airborne asbestos concentrations were reduced by an average of 98 percent.**

At the same time Slodusty Road was resurfaced, we also resurfaced Garden View Road, Garden View Court, and a small portion of Bayleaf Drive since they were in the immediate vicinity of the high school and were also serpentine covered roads.

A risk assessment was completed

After reviewing the air data produced by this investigation, DTSC worked with OEHHA to prepare a human health risk assessment to estimate the potential additional cancer risk associated with airborne asbestos from the road. OEHHA's human health risk assessment is entitled "*Department of Toxic Substances Control (DTSC) Slodusty Road Study: Airborne Asbestos Quantitative Cancer Risk Assessment, September 2004*" and is included as an appendix to DTSC's report.

The human health risk assessment:

- Looked at the risk of cancer and not asbestosis.
- Is based on measurements of airborne asbestos generated by the simulated traffic conditions prior to and following the resurfacing of Slodusty Road.
- Defines the typical traffic scenario as 10 vehicles per hour at 10 m.p.h. with a maximum exposure occurring for 16 hours per day, 306 days per year over 70 years.
- Estimates the range of risk of additional cancer occurrences (before resurfacing) from 3 in 1,000 to 3 in 100,000 at 5 feet and 190 feet from the road respectively.

The reduction of airborne asbestos resulting from the resurfacing significantly reduced the associated cancer risk. For general comparison, environmental regulatory agencies often consider an estimated cancer risk below one in one million to be a good starting point when establishing cleanup levels for residential use.

Based on this and other studies, DTSC recommends that similar roads and driveways surfaced with serpentine aggregate be resurfaced.

We anticipate that people may have the following additional questions:

Q: Are agencies planning to do anything further about private roads with naturally occurring asbestos?

A: Currently, DTSC is not planning to conduct any additional studies or road work in Garden Valley. DTSC has completed its airborne asbestos study and is providing information and guidance to the public and local agencies regarding asbestos in roadways. The study was conducted on a typical serpentine covered road in Garden Valley. This information is intended to assist individuals responsible for maintaining private and public roads to make decisions regarding resurfacing their roads. DTSC recommends that roads containing asbestos be resurfaced with materials that do not contain asbestos.

Q: Does the calculated cancer risk indicate a significant risk to residents near serpentine roads?

A: The estimated cancer risk from this study is relatively high, although we believe it was calculated with health-conservative assumptions. Since environmental regulatory agencies often consider an estimated cancer risk below one in one million to be a good starting point when establishing cleanup levels for residential use, we consider the three in 1,000 to be significantly elevated.

Q: Does this risk estimate mean if I live close to a serpentine covered road, my chances of getting cancer are significantly higher?

A: Risk assessments are not very useful or accurate tools for predicting additional risk for a specific individual or family. They are tools used by environmental agencies to determine the level of threat associated with an environmental condition. They generally use very conservative assumptions such as assuming the person is being exposed continuously for 16 to 24 hours per day from 300 to 365 days a year for up to 70 years. DTSC is presenting the estimated risk numbers from the risk assessment to demonstrate a need for action in addressing serpentine roads. The risk assessment cannot be used to predict increased risk for an individual. Actual risk from similar roads will depend on actual exposure conditions.

Q: Resurfacing my asbestos containing road may protect me from future exposure but how do I determine if I have been significantly exposed in the past?

A: We recognize that people may have concerns about their past exposure. We can only recommend that people with health concerns based on past exposure to asbestos should consult with their physicians.

Q: What options do we have to protect ourselves from exposure to asbestos on our roads and driveways covered in serpentine aggregate?

A: DTSC's study has shown that covering serpentine aggregate roadways with pavement that seals the roadway surface such as chip seal or asphalt pavement is effective in reducing emissions of asbestos into the air. Until these roads are resurfaced, we recommend reducing vehicle speed. Also, asbestos fibers may collect within vehicles driven on serpentine roads. Interiors of vehicles should be cleaned with vacuums using special asbestos filters or HEPA filters and with wet cloths that should be washed or disposed. This same means of cleaning is recommended for homes. Information on other measures to reduce exposure from naturally occurring asbestos are described on the Air Resources Board website at www.arb.ca.gov/toxics/Asbestos/general.htm.

Q: How do I know if we have an asbestos problem on our private road or driveway?

A: This study specifically examined a serpentine gravel road. If your road or driveway is serpentine gravel, we recommend resurfacing it. You may consult a qualified environmental professional who can examine your road, sample the road, and give you their professional analysis of whether you have an asbestos problem on your private road or driveway.

DTSC has sampled a number of the serpentine roads in Garden Valley and the measured asbestos concentrations are in: *Report on Surface Soil Sampling for Naturally Occurring Asbestos, Garden Valley, California October 2002* prepared by DTSC. However, we conducted limited sampling. Moreover, road use and maintenance may have changed the asbestos concentration of these roads since they were sampled in 2002.

If I have questions, who do I contact?

If you have questions, please call Rick Fears, Project Manager, at (916) 255-3802. His e-mail is RFears@dtsc.ca.gov. You may also call Nathan Schumacher, Public Participation Specialist, at (916) 255-3650 or e-mail at NSchumac@dtsc.ca.gov. If you are from the media, please call Lisa Gray, Assistant Public Information Officer, at (916) 324-0936 or e-mail at LGray@dtsc.ca.gov.

Where can I read these studies?

These reports are available on DTSC's website at:

www.dtsc.ca.gov/SiteCleanup/Garden_Valley/index.html

You can read our study entitled *Study of Airborne Asbestos From a Serpentine Roadway in Garden Valley California*, and OEHHA's *Department of Toxic Substances Control (DTSC) Slodusty Road Study: Airborne Asbestos Quantitative Cancer Risk Assessment, September 2004* at the Garden Valley Fire Station, 4860 Marshall Road in Garden Valley.

You may also read them at our file room:

DTSC File Room
8800 Cal Center Drive
Sacramento CA 95826

(916) 255-375

Below are some helpful internet sites about airborne asbestos:

California Air Resources Board (CARB) Web Site

www.arb.ca.gov/toxics/asbestos.geninfo.htm

California Office of Environmental Health Hazard Assessment (OEHHA)

www.oehha.ca.gov/air/toxic_contaminants/Asbes_F.html

Notice to Hearing Impaired
You can obtain additional information by using the California State Relay Service at: 1-888-877-5378.
Please ask them to contact Nathan Schumacher at (916) 255-3650 regarding Garden Valley.

Cut out and mail

ARE YOU ON DTSC's MAILING LIST?

If you would like to be on the Garden Valley mailing list, fill out the information below and mail back to Nathan Schumacher DTSC, 8800 Cal Center Drive, Sacramento CA 95826:

Please print name and address clearly.

Name: _____

Address: _____

City/State/Zip: _____

Phone: _____ Fax: _____ E-mail: _____

Comment:

❑ Please take me off the mailing list.

Note: While the mailing list is solely for DTSC use, the list is considered a public record.